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ABSTRACT

Today's information infrastructure provides access to a growing array of software and services for education. As both the capabilities of technology and the number of its uses grow, the need to set national policy for computer networking has become increasingly apparent. The High Performance Computing Act of 1991 established government support for the development of the National Research and Education Network (NREN), which is designed to provide links with computer and information resources for researchers, educators, and students. In the past 2 years, federal networking policy has changed to emphasize rapid commercialization of infrastructure and services, broader social goals, greater focus on network users, and community participation. The proposed National Information Infrastructure Act of 1993 amends the original NREN provisions to define national policy more clearly and to increase the emphasis on social goals. The government is not alone in trying to broaden the goals and uses of the national information infrastructure, as the participation of public interest groups and individuals demonstrates. Several sources of information about the infrastructure are listed. (Contains 24 references.) (SLD)

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Introduction

The federal government's vision for the National Information Infrastructure (NII) is driven in part by new advances in the development of computer hardware, software, and networks. But it has also been influenced by a tremendous upsurge in the use of existing capabilities. The Internet, a global matrix of thousands of computer networks, is already allowing millions of people to browse for information and communicate with each other electronically (Elmer-Dewitt, 1993). Today's information infrastructure provides access to a growing array of software and services for education, work, entertainment, and daily life; and the richness of these resources grows as multimedia applications become more common.

As both the capabilities of technology and number of its users grow, the need to set national policy directions for computer networking--including defining the role of government in supplying financial, administrative, and R&D support for the burgeoning infrastructure--has become increasingly apparent. The potential of global networking to test the very fabric of society has also become more evident, which may be why computer networks have recently captured the attention of everyone from senators to cartoonists. At issue are, among other things, multi-billion dollar investments and profits, revolutionary changes in education and scholarly communication, and far-reaching threats to personal freedom and privacy.

From the NREN...

The High Performance Computing Act of 1991 (P.L. 102-194) established government support for the development of the National Research and Education Network (NREN), which is designed to provide researchers, educators, and students with links to computer and information resources. Its chief aims are to foster U.S. leadership in high performance computing and communications and to promote advances in science and industrial productivity (Bishop, 1991). The expected broader benefits of the NREN are secondary. For example, research and education benefits would eventually make their way to a wider range of disciplines and lower educational levels. General economic prosperity and national well-being would be felt as the U.S. strengthened its superior position in international high tech markets and made rapid advances in science and engineering. Some attention is given in the legislation to the need to connect schools and libraries, provide NREN information and training services to potential users, and take advantage of the potential of the NREN to improve dissemination of government information. Finally, important policy issues needing attention are identified, such as intellectual property protection, maintaining network security and privacy, and guiding the transition to commercial use.

In the last two years, however, federal networking policy has changed dramatically. Rapid commercialization of infrastructure and services, broader social goals, greater focus on network users, and community level participation through Internet connections are important new items on the policy agenda. This new vision advocates a seamless mesh of high performance computing and communications resources that would reach every U.S. community and enhance the life of each and every citizen.

... To the NII

The proposed National Information Infrastructure Act of 1993 (H.R. 1757), which passed the House on July 26, 1993 and has been introduced in the Senate as part of its proposed National Competitiveness Act of 1993 (S. 4), amends the NREN portion of P.L. 102-194 to more clearly define the government's national networking program. While the earlier legislation emphasized infrastructure R&D and deployment, H.R. 1757 focuses on the development of applications and training to make sure that the network infrastructure is put to good use. It states that the network should "directly benefit all Americans," provide "large economic and social benefits," and be "designed to be accessible and usable by all, including historically underserved populations and individuals with disabilities, in the fields of education, libraries, health care, the provision of government information, and other appropriate fields."

The proposed NII Act contains a number of important provisions to help accomplish these broader goals (see American Library Association, 1993, for a brief summary of NII legislation and hearings). It directs federal agencies to develop plans for supplying the financial assistance that public libraries, educational institutions and others will need in order to gain access to the Internet. It adds a new Title III that establishes programs for the development of network applications as well as access and training programs. Emphasis on broad public use is clear: NSF is authorized to help create community networks to link local libraries, schools, and government organizations to each other and to the Internet; K-12 schools are a primary target for the development of educational applications and network training materials; online health information is to be made available through public libraries; an Internet-accessible federal information locator system that would greatly improve public access to government information is to be established; and training programs for librarians are to be developed so that they can instruct the public in Internet access and use.

The new bill places increased emphasis on mechanisms to assure that the broad social goals of the NII are met. Mandated are assessments of agency network programs, as well as research on long-range social and ethical implications of the NII. Finally, the bill establishes a high-level advisory committee comprised of representatives of the research, education, and library communities; consumer and public interest groups; and the technology and information industries.

In September, 1993, the Clinton administration released a statement elaborating its NII agenda. Its objectives with regard to the NII are to (Executive Office of the President, 1993, Tab A, [p.1-2]):

- Promote private sector investment
- Extend the concept of universal service to ensure that information resources are available to all people at affordable prices
- Act as a catalyst to promote technological innovation and new applications
- Promote seamless, interactive, user-driven operation of the network infrastructure
- Ensure information security and network reliability
- Improve management of the radio frequency spectrum
- Protect intellectual property rights

- Coordinate with other levels of government and with other nations
- Provide access to government information and improve government procurement.

These objectives are to be achieved through government investments and the reform of relevant regulations and policies. Included in the NII vision is civic networking to serve the public interest, as well as a kind of consumer's paradise in which you could "see the latest movies, play the hottest video games, or bank and shop from the comfort of your home whenever you chose" (Tab B, [p. 1]).

Public Policy Issues

The government is not alone in seeking to broaden the goals and uses of the NII. Public interest groups and individual commentators espouse a similar ideal of inclusiveness and diversity. They have maintained pressure on policymakers to ensure that the NII vision upholds the public interest. Debate has focused on the regulation of the telecommunications industry and the role of the government in infrastructure development and service provision, as well as on defining the basic goals for the NII that will drive policy formulation (Computer Professionals for Social Responsibility, 1993; Kapor, 1993; Lerner, 1993; NREN, 1993; Peters, 1993; Weingarten, 1993). Winner (1993, p. B3) suggests that "[t]he discussion should focus not only on technical features and economic payoffs, but also on aspects of social organization and long-term consequences for the quality of public life." The Center for Civic Networking (1993, draft) has called for a "rigorous agenda of accountability and thorough research" so that NII policy is not formed in a vacuum. It argues that each government NII initiative "include formative criteria and reporting requirements which can provide ongoing data on individual use of networked information, demographics of served populations, and other information useful to benchmarking public interest goals and to the research community" ([p. 5]).

The Telecommunications Policy Roundtable, a group of over 70 non-profit organizations, has formed to urge NII policymakers to give attention to the public interest. They have set forth principles for networking, including: free access to information; freedom of speech and privacy protection for network users; a civic-sector component analogous to an "electronic commons" for public discussion; a marketplace of ideas that is not controlled by telecommunications carriers; enhanced workplace equity; and public involvement in NII policymaking (DeLoughry, 1993, p. A23).

The problems and benefits of a national information infrastructure are upon us now. The benefits of networking for libraries and K-12 education are already in evidence (Leslie, 1993; McClure, Moen, & Ryan, 1994; Tinker & Kapisovsky, 1992). Community networks, such as the Blacksburg Electronic Village (Wiencko, 1993) and CapAccess in Washington, DC (Walsh, 1993) provide working models of real capabilities and of attempts to merge public and private sector interests.

Keeping Up With the Action

For those interested in keeping up with NII developments and issues, there are organizations whose publications and conferences are especially valuable. These include the Coalition for Networked Information, EDUCOM, Computer Professionals for Social Responsibility, Harvard's Information Infrastructure Project, the Center for Civic Networking, the Electronic Frontier Foundation, and the Taxpayer Assets Project (established by Ralph Nader). The information servers established by these organizations (as well as those of specific government agencies) house useful documents and announcements that are accessible through gopher and ftp.

Interesting, timely, and free online news related to developments in national networking is available by subscribing to electronic mailing lists such as: *ALAWON*, the American Library Association's Washington Office newsline; *TAP-INFO*, from the Taxpayer Assets Project; *Edupage*, from EDUCOM; *CSPR Alert* from Computer Professionals for Social Responsibility; and *EFFector Online* from the Electronic Frontier Foundation. (To subscribe, see below.)

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